

1 **DIRECT TESTIMONY OF**

2 **ROSE M. JACKSON**

3 **ON BEHALF OF**

4 **SOUTH CAROLINA ELECTRIC & GAS COMPANY**

5 **DOCKET NO. 2014-2-E**

6  
7 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

8 A. My name is Rose M. Jackson, and my business address is 1400 Lady Street,  
9 Columbia, South Carolina 29201.

10  
11 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT POSITION?**

12 A. I am employed by SCANA Services, Inc. ("SCANA Services") as General  
13 Manager, Supply and Asset Management.

14  
15 **Q. PLEASE DESCRIBE YOUR DUTIES RELATED TO NATURAL GAS AND**  
16 **URANIUM PROCUREMENT FOR ELECTRIC GENERATION IN YOUR**  
17 **CURRENT POSITION.**

18 A. I am responsible for managing the department that provides natural gas and  
19 uranium procurement services for the generating facilities operated by South  
20 Carolina Electric & Gas ("SCE&G"). With regard to natural gas, these  
21 responsibilities include procurement of natural gas supply and capacity;  
22 nominations and scheduling; gas accounting; and state and federal regulatory

1 issues related to supply, capacity, and asset management. With regard to uranium  
2 procurement, these responsibilities include procurement of natural uranium and  
3 conversion services.

4  
5 **Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND**  
6 **WORK EXPERIENCE.**

7 A. I graduated from the University of South Carolina in 1988 with a Bachelor  
8 of Science degree in Accounting. Following graduation, I worked for  
9 approximately three (3) years as an accountant for a national security services  
10 firm. In 1992, I began my employment with SCANA as an accountant. Over the  
11 years, I have held varying positions of increasing responsibility related to gas  
12 procurement, interstate pipeline and local distribution company scheduling, and  
13 preparation of gas accounting information. In May 2002, I became Manager of  
14 Operations and Gas Accounting with SCANA Services where I was responsible  
15 for gas scheduling on interstate pipelines and gas accounting for all SCANA  
16 subsidiaries. In November 2003, I became Fuels Planning Manager where I  
17 assisted all SCANA subsidiaries with strategic planning and special projects  
18 associated with natural gas. I held this position until promoted to my current  
19 position in December 2005.

1 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE ANY REGULATORY**  
2 **COMMISSION?**

3 A. Yes, I have testified before this Commission on several occasions. I have  
4 also testified before the Georgia Public Service Commission and the North  
5 Carolina Utilities Commission.

6  
7 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS**  
8 **PROCEEDING?**

9 A. The purpose of my direct testimony is to provide information about the  
10 natural gas and nuclear fuel purchasing process for SCE&G generation and to  
11 discuss natural gas and uranium prices for the review period of January 1, 2013,  
12 through December 31, 2013 ("Review Period"), and the near-term outlook.

13  
14 **I. NATURAL GAS PURCHASING**

15 **Q. PLEASE DESCRIBE HOW YOUR DEPARTMENT MAKES NATURAL**  
16 **GAS PURCHASING DECISIONS.**

17 A. The natural gas purchases made by the Natural Gas and Uranium  
18 Procurement Department ("Department") are driven by the needs of the electric  
19 generation group. We supply SCE&G's Economic Resource Commitment Group  
20 ("ERC") with current market information that they use in resource commitment  
21 modeling for our electric generation plants. ERC requests natural gas price quotes  
22 and market information from the Department on a continual basis. ERC uses

1 current natural gas prices as one input into its dispatch modeling to determine the  
2 most economical means of reliably meeting the electricity needs of our customers.

3 The actual natural gas purchasing decisions are driven by the unit  
4 commitment decisions made by ERC. After ERC decides that natural gas is the  
5 economical choice for providing reliable power to our customers, the Department  
6 is directed to purchase natural gas supplies for delivery with a stated term and  
7 volume at the best available current market prices at that time.

8  
9 **Q. ARE YOUR CONTRACTS TO PURCHASE NATURAL GAS NORMALLY**  
10 **SHORT-TERM OR LONG-TERM?**

11 A. We have industry standard contracts with more than 50 suppliers that have  
12 proven to be creditworthy and reliable. These contracts set forth many of the  
13 terms and conditions of delivery. Price and quantity, however, are determined at  
14 the time of purchase.

15 The most common prices quoted for daily natural gas deliveries are the  
16 day-ahead gas price. The Gas Daily Average or GDA, for example, is an average  
17 of these day-ahead prices, reported on a historical basis the next business day.

18 The day-ahead natural gas market, however, closes at mid-day of the day  
19 before the natural gas is delivered. Because some unit commitment decisions may  
20 not be made until the following morning, GDA prices are not available for all  
21 supply purchases for electric generation. In these situations, the natural gas we  
22 purchase for electric generation is made in the intraday market. In summary,

1 natural gas purchases are short-term in nature when compared to other fuel  
2 purchases due to the fungible nature of natural gas and the liquidity of the natural  
3 gas market.

4  
5 **Q. WHAT TOOLS DO YOU USE TO INFORM YOUR NATURAL GAS**  
6 **PURCHASING DECISIONS?**

7 A. The most important tools used to inform our purchasing decisions are the  
8 Department's collective experience in national natural gas markets, careful  
9 observation and evaluation of movements in market-based prices, and continual  
10 surveys of our suppliers for pricing information. These tools are by far the most  
11 important and most accurate in helping to determine market-based prices for  
12 natural gas supplies being purchased on the "spot market."

13 Another tool we use to inform our purchasing decisions is the  
14 Intercontinental Exchange ("ICE"), which is a real time electronic trading board.  
15 The shortcoming of the ICE service as with other pricing services is that not all  
16 trades are reflected in these services. Nevertheless, ICE is one of the most widely  
17 used sources of pricing information and provides a reliable indication of current  
18 market prices.

19 We also use the New York Mercantile Exchange ("NYMEX") pricing data  
20 as a guide to determine whether to purchase natural gas on a monthly or seasonal  
21 basis. NYMEX is a financial market which captures real-time trading data and

1 information about the projected price of natural gas and other commodities at  
2 various times in the future.

3  
4 **Q. WHAT NATURAL GAS TRANSPORTATION CAPACITY DOES SCE&G**  
5 **HAVE FOR THE URQUHART COMBINED CYCLE UNITS AND THE**  
6 **JASPER FACILITY?**

7 A. SCE&G has a long-term capacity contract with Southern Natural Gas  
8 Company (“SNG”) for firm transportation service of 51,050 dekatherms (“Dt”) per day to serve Urquhart. In addition, SCE&G participated in an Open Season  
9 held by the SNG pipeline for incremental short term firm capacity. During this  
10 Open Season, parties had the opportunity to bid on 10,210 Dt of firm capacity that  
11 became available for use in July 2013 expiring in April 2014. SCE&G was  
12 awarded the entire capacity amount at current tariff rates for the full term. This  
13 incremental short term capacity increases SCE&G’s total firm transportation  
14 service to 61,260 Dt of capacity.

15  
16 For Jasper, SCE&G has contracted with SCANA Energy Marketing, Inc.  
17 (“SEMI”) for firm natural gas capacity of 120,000 Dt per day. Under this  
18 Commission-approved contract, SEMI provides natural gas supply when needed.

1 **Q. PLEASE DESCRIBE THE MOVEMENT OF NATURAL GAS PRICES**  
2 **DURING THE CURRENT PERIOD UNDER REVIEW.**

3 A. As depicted in Exhibit No. \_\_\_\_ (RMJ-1) attached hereto, prices began the  
4 year just above \$3.00 per Dt. The combination of a colder than normal winter  
5 season in 2012-2013 and associated high storage withdrawals increased natural  
6 gas prices to the \$4.00 per Dt area in early spring. By midsummer, the storage  
7 deficit had improved and prices dropped as well, moving back to the low \$3.00 per  
8 Dt area. From that point, prices fluctuated in the mid \$3.00 per Dt area. In late  
9 November, an early cold blast and an unusually strong storage withdrawal for  
10 November increased market prices. This cycle repeated itself in December further  
11 increasing market prices to new highs for the year in late December and finishing  
12 the year at \$4.23 per Dt.

13 The near-term forecast indicates natural gas prices are likely to remain at  
14 current levels as the winter period comes to a close. However, short-term price  
15 volatility can result from dramatic changes in either supply or demand  
16 components. The fundamental factors of such changes may include, but are not  
17 limited to, weather, increases in customer demand, changes in supplies from shale  
18 production, changes in storage inventory levels, and/or constraints in pipeline  
19 capacity. Energy analysts continue to forecast relatively stable gas prices in the  
20 \$4.00 per Dt to \$5.00 per Dt range over the next 3 to 5 years.

## II. NUCLEAR FUEL PURCHASING

**Q. PLEASE DESCRIBE THE NUCLEAR FUEL CYCLE.**

A. Uranium ore is the source of fuel used to generate electricity in nuclear reactors. Naturally occurring uranium primarily consists of two isotopes, 0.7% Uranium-235 and 99.3% Uranium-238. As depicted in Exhibit No.\_\_\_\_ (RMJ-2) attached hereto, uranium must undergo a series of processes to produce a useable fuel before it can be used in a reactor for electricity generation. These processes are mining and milling, conversion, enrichment, and fabrication. In the first stage, uranium is mined. Once the ore is mined it is sent to a mill where it is crushed into smaller pieces and then introduced to a slurry in which a strong mixed solution is used to dissolve the uranium. At this point in the mining and milling process, the uranium is then dried and commonly referred to as yellowcake, also known as uranium oxide (“ $U_3O_8$ ”) concentrate. In the next step of the process, known as conversion, the  $U_3O_8$  goes through a chemical process in which it is converted into uranium hexafluoride (“ $UF_6$ ”). The  $UF_6$  then becomes the feedstock required in the isotopic separation process, known as enrichment. Once the  $UF_6$  is enriched to the desired level, it is converted to uranium dioxide (“ $UO_2$ ”) powder and formed into pellets. This process, and the subsequent steps of inserting the fuel pellets into fuel rods and bundling the rods into fuel assemblies for use in nuclear reactors, is referred to as fabrication.



1 **Q. PLEASE DESCRIBE HOW THE DEPARTMENT MAKES PURCHASING**  
2 **DECISIONS FOR NUCLEAR FUEL.**

3 A. The responsibilities related to nuclear fuel procurement are shared between  
4 the Department and the Nuclear Design and Analysis department (“NDA”). NDA  
5 prepares a forecasted refueling schedule which is reviewed by the Department on  
6 an annual basis. This forecast forms the foundation for the nuclear fuel  
7 requirements forecast. Once the nuclear fuel requirements forecast is developed,  
8 the Department is primarily responsible for procuring U<sub>3</sub>O<sub>8</sub> and conversion  
9 services and NDA is primarily responsible for procuring enrichment and  
10 fabrication services. Collectively, the Department and NDA form the Nuclear Fuel  
11 Procurement team (“Team”). The Team determines nuclear fuel requirements,  
12 shares market information and reviews offers related to all segments of the nuclear  
13 fuel cycle.

14  
15 **Q. ARE SCE&G’S CONTRACTS TO PURCHASE NUCLEAR FUEL**  
16 **NORMALLY SHORT-TERM OR LONG-TERM?**

17 A. Due to the long lead time required to process uranium prior to being loaded  
18 in SCE&G’s reactor, our contracts are normally long-term contracts. Currently  
19 the Company has long-term commitments for uranium and conversion services,  
20 enrichment and fabrication for V.C. Summer Unit One. The Team monitors the  
21 nuclear fuel market on an ongoing basis and evaluates spot market opportunities  
22 from time to time that may supplement long-term contract supplies as appropriate.

1 Included in the procurement process is the Company's contingency reserve. The  
2 nuclear fuel contingency reserve targets are designed to provide security of supply  
3 for future requirements by mitigating potential market disruptions.  
4

5 **Q. PLEASE DESCRIBE THE MOVEMENT OF NUCLEAR FUEL PRICES**  
6 **DURING THE CURRENT PERIOD UNDER REVIEW.**

7 A. The nuclear fuels market is comprised of two types of pricing scenarios:  
8 spot and long-term. Spot prices typically represent any transaction taking place  
9 within a year while long-term prices require a commitment for some period  
10 beyond one year. Each of the nuclear fuel processes can be purchased individually  
11 or bundled at any point in the fuel cycle, with the exception of fabrication.  
12 Fabrication is a complex process that has specific requirements for each individual  
13 reactor and therefore is typically sourced to a single supplier with long-term  
14 agreements. Over the past few years the spot market price for the U<sub>3</sub>O<sub>8</sub>  
15 component of nuclear fuel has been trending down. In the near term, prices for  
16 uranium and the other processes in the nuclear fuel cycle are anticipated to remain  
17 relatively stable for both short-term and long-term pricing.  
18

19 **Q. WHAT REQUEST DOES SCE&G MAKE OF THE COMMISSION IN**  
20 **THIS PROCEEDING?**

21 A. During the Review Period, the Natural Gas and Uranium Procurement  
22 Department made diligent and prudent efforts to obtain reasonable market-based

1 prices for the reliable supply of nuclear fuel and natural gas for electric generation  
2 and to procure the necessary capacity for the delivery of that supply. Therefore,  
3 on behalf of SCE&G, I respectfully request that the Commission find that the  
4 Company's fuel purchasing practices were reasonable and prudent for the Review  
5 Period.

6  
7 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

8 **A. Yes.**

# 2013 Daily Settle Prices

Exhibit \_\_\_\_\_ (RMJ-1)



# The Nuclear Fuel Cycle

